

REMARKS

Claims 1-16, 30-3, and 48-51 are currently pending in the application. Claims 1, 6, 11, 16, 30, 32 and 37 are all pending independent claims.

35 USC § 103(a) REJECTIONS

Claims 1-16, 30-38 and 48-51 are rejected under 35 USC § 103(a) over US Publication 2003/012379 to Hashimoto (hereinafter "Hashimoto") in view of US Patent No. 6,566,745 to Beyne, et al. (hereinafter "Beyne").

In the amendment filed April 30, 2007, independent claims 1, 6, 11, 16, 30, 32, and 37 were previously amended to recite "wherein a space is formed between said effective pixel region and said light-transparent cover." On page 3 of the present Office action, the Examiner acknowledges that Hashimoto does not disclose "a space is formed between the effective pixel region and the light-transparent cover."

The present Office Action further states that, Hashimoto in view of Beyne in col. 7, lines 38-42, teaches that the space between the effective pixel region and the light-transparent cover could be used for the wire bonding of the effective pixel region to the chip I/O pads. However, Applicants respectfully submit that the spacing referred to at col. 7, lines 38-42 of Beyne is different from the space formed between the effective pixel region and the light-transparent cover of the present invention. Beyne refers to this space as a "cavity", at for example, col. 5, lines 47-52. This cavity is sealed to prevent diffusion of moisture or epoxy in between the image sensor and the transparent cover.

Moreover, there is no motivation to combine the teaching of Hashimoto with that of Beyne. Hashimoto expressly teaches away from an optical device with a spacing between the effective pixel region and the light-transparent cover. In the Background of the Invention Section, Hashimoto admits the deficiencies of manufacturing an optical

device with a space provided between the optical section and a cover (i.e, dust such as cutting chips may be put on the optical section). Hashimoto, [0003]. Hashimoto then goes on to describe, "the adhesive layer 36 and the transparent substrate 32 seal the optical section 14. No gap may be provided between the adhesive layer 36 and the optical region 14." Hashimoto, [0093].

Furthermore, Beyne discloses that before sealing the semiconductor substrate and the transparent substrate with the sealing ring, the semiconductor substrate is diced into pieces. See e.g., Beyne, Col. 8, Ins. 1-34. On the contrary, Hashimoto discloses that after the adhesive layer 36 seals the optical section 14, the first substrate 10 is cut unto individual optical elements 50a. See e.g., Hashimoto, [0093]-[0094]. Hashimoto further describes that because the first substrate 10 is cut after sealing the optical sections 14, it is possible to obtain a quality optical device without encountering dust intrusion to the sealed region. See e.g., Hashimoto, [0094].

The processes of Beyne causes higher risk of intrusion of dust made by dicing/cutting the substrate than the process disclosed in Hashimoto. Therefore, there is no motivation for one of ordinary skill in the art to modify the device of Hashimoto with the teaching of Beyne, because such modification would result in loss of optical quality of the device by the intrusion of dust.

In view of the foregoing arguments, Applicants respectfully request the withdrawal of the 35 USC § 103(a) rejections of pending independent claims 1, 6, 11, 16, 30, 32 and 37, and dependent claims 2-5, 7-10, 12-15, 31, 33-36, 38 and 48-51.

Applicants submit herewith an RCE and pay for it by authorization to charge Deposit Account No. 04-1105.

Applicants believe that no other fees or extensions are required. However, if for any reason a fee is required, the Office is conditionally authorized to charge Deposit Account No. **04-1105** for the appropriate amount(s). In view of the above amendment, applicant believes all pending claims (i.e., claims 1-16, 30-38, and 48-51) are in condition for allowance and request allowance.

Dated: October 23, 2007

Respectfully submitted,

By 

David G. Conlin

Registration No.: 27,026

EDWARDS ANGELL PALMER & DODGE
LLP

P.O. Box 55874

Boston, Massachusetts 02205

(617) 517-5567

Attorneys/Agents For Applicant

Customer No. 21874